



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,535	07/29/2003	Hardayal Singh Gill	HSJ920030016US2	6066

51298 7590 10/12/2005
CRAWFORD MAUNU PLLC
1270 NORTHLAND DRIVE
SUITE 390
ST. PAUL, MN 55120

EXAMINER

WATKO, JULIE ANNE

ART UNIT	PAPER NUMBER
----------	--------------

2653

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,535

Applicant(s)

GILL ET AL.

Examiner

Julie Anne Watko

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9, 16, 17, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 10-15 and 18-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Amended claims 10, 12-16 and 18-24 have been rejoined.

Drawings

2. The drawings were received on August 26, 2005. These drawings are not acceptable. Some sheets have headers so large as to encroach upon the figures. Furthermore, the corrections required for Figs. 7a-b have not been included in Applicant's submission. Moreover, newly submitted Fig. 8 is not labeled as a "Replacement Sheet".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 9, 16-17 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (US Pat. No. 6927952 B2) in view of Ishikawa et al (US PAP No. 2001/0030887 A1).

Due to similarities in recited subject matter, the independent claims are treated together.

As recited in claim 17, Shimizu et al show a magnetic storage system (see Fig. 1), comprising a moveable magnetic storage medium 13 for storing data thereon; an actuator 17 positionable relative to the moveable magnetic storage medium; and a magnetoresistive sensor 19, coupled to the actuator, for reading data from the magnetic recording medium when position to a desired location by the actuator.

As recited in claims 9, 17 and 25, Shimizu et al show a self-pinned abutted junction magnetic read sensor (see Fig. 7), comprising a first pinned layer 142 having a first magnetic orientation, the first pinned layer having a first end, a second end and central portion; a second pinned layer 146 formed over only the central portion of the first pinned layer, an interlayer 144 being disposed between the first and second pinned layers; a free layer 120 formed in a central region over the second pinned layer; and a first and second hard bias layers 56 formed over the first and second ends of the first pinned layer respectively, the first and second hard bias layer abutting the free layer, the first and second end of the first pinned layer extending under the hard bias layers at the first and second ends.

As recited in claims 9, 17 and 25, Shimizu et al are silent regarding whether the pinned layers are self-pinned.

As recited in claims 9, 17 and 25, Ishikawa et al show that pinned layers are self-pinned (“The two ferromagnetic films 51 and 53 should have an adequate thickness, so that the pinned layer has a large effective coercive force for it to be of self-pinned type. The result is a reduction of static magnetic field applied from the pinned layer and obviation of the antiferromagnetic film to fix the pinned layer. The advantage is a reduction of the entire film thickness of the head and a reduction of the gap length”, see ¶ 0010).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pinned layers of Shimizu et al self-pinned as taught by Ishikawa et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to make the pinned layers self-pinned in order to reduce a static magnetic field applied from the pinned layers

Art Unit: 2653

and to obviate the antiferromagnetic film so as to reduce the entire film thickness and to reduce the gap length as taught by Ishikawa et al (see ¶ 0010).

As recited in claims 16 and 24, Shimizu et al show that a free layer (inherently) includes a length selected for a desired track width.

Allowable Subject Matter

5. Claims 10-15 and 18-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 9, 17 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Mon, Tue, Thu & Fri until 4:45PM, Wed until 3:30PM.

Art Unit: 2653

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko
Primary Examiner
Art Unit 2653

October 7, 2005

JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', is written over the printed name and title.